

(12) INTERNATIONAL PUBLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 April 2004 (15.04.2004)

PCT

(10) International Publication Number
WO 2004/031962 A3

(51) International Patent Classification⁷: **G06F 12/08**

(21) International Application Number:
PCT/IB2003/004329

(22) International Filing Date: 1 October 2003 (01.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02079126.5 4 October 2002 (04.10.2002) EP

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

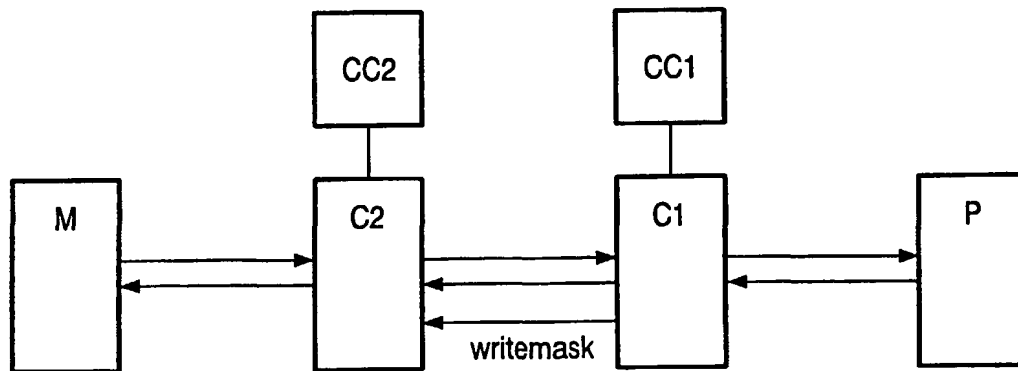
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

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[Continued on next page]

(54) Title: DATA PROCESSING SYSTEM HAVING A HIERARCHICAL MEMORY ORGANISATION AND METHOD FOR OPERATING THE SAME



(57) Abstract: A data processing system according to the invention comprises a processor (P) and a memory hierarchy. The highest ranked level therein is a cache coupled to the processor. The memory hierarchy comprises a higher ranked cache (C1) having a cache controller (CC1) operating according to a write allocate scheme, and a lower ranked cache (C2) is coupled to the higher ranked cache (C1) having a cache controller (CC2). The size of the higher ranked cache is smaller than the size of the lower ranked cache. Both caches (C1, C2) administrate auxiliary information (V1, V2) indicating whether data (D1, D2) present therein is valid. The linesize of the lower ranked cache (C2) is an integer multiple of the linesize of the higher ranked cache (C1). The auxiliary information (V1) in the higher ranked cache (C1) concerns data elements (D1) at a finer granularity than that in the lower ranked cache (C2). The higher ranked cache (C1) is arranged for transmitting a writemask (WM) to the lower ranked cache (C2) in conjunction with a line of data (DL) for indicating which data in the lower ranked cache (C2) is to be overwritten at the finer granularity. Fetching a line from the next lower ranked level (M) is suppressed if the writemask (WM) indicates that the line (DL) provided by the higher ranked cache (C1) is entirely valid in which case, the controller (CC2) of the lower ranked cache allocates the cache line in the lower ranked cache (C2) without fetching it.



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WO 2004/031962



MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

— with international search report

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:

16 December 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F12/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 307 477 A (NGO HUY X ET AL) 26 April 1994 (1994-04-26) cited in the application column 3, line 22 - column 4, line 4 column 12, line 21 - line 64	1-6
A	US 6 374 330 B1 (ARIMILLI RAVI KUMAR ET AL) 16 April 2002 (2002-04-16) column 4, line 44 - column 6, line 4	1-6

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

1 October 2004

Date of mailing of the international search report

21/10/2004

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